

Instructional Framework

Aircraft Mechanics

47.0600.50

This Instructional Framework identifies, explains, and expands the content of the standards/measurement criteria, and, as well, guides the development of multiple-choice items for the Technical Skills Assessment. This document corresponds with the Technical Standards endorsed on May 16, 2012 and with modifications made on June 3, 2017 to align standards 8, 9, and 10 with FAA requirements.



Domain 1: Regulatory

Instructional Time: 25-30%

STANDARD 3.0 WEIGH AND BALANCE AIRCRAFT

3.1 Weigh aircraft

- Understanding of definitions of datum, arm, and moment
- Preparation for weighing
- Understanding of tare, ballast, residual fuel/oil
- Understanding of TCDS
- Adverse loading conditions
- Understanding of Mean Aerodynamic Chord (MAC)

3.2 Perform weight and balance check and record data

- Item/weight/arm/moment calculations

STANDARD 8.0 PREPARE AIRCRAFT MAINTENANCE FORMS AND RECORDS AND INTERPRET PUBLICATIONS

8.1 Write descriptions of work performed using typical aircraft maintenance records

- FAR 43.9
- Mechanics certificate types
- Aircraft maintenance specifications

8.2 Complete required maintenance forms, records, and inspection reports

- Log page
- FAA 337 major repair or alteration
- Minor/major repair
- Minor/major alteration
- FAR 43 91 121

8.3 Apply information from maintenance publications

- Aircraft maintenance specifications
- AC 43.13-1B
- FAA approved date
- Airworthiness directives

STANDARD 10.0 INTERPRET MECHANIC PRIVILEGES AND LIMITATIONS

10.1 Identify mechanic privileges within the limitations prescribed by 14 CFR

- Location of privileges
- Airframe certificate privileges
- Powerplant certificate privileges
- Airframe certificate limitations
- Powerplant certificate limitations
- Major repairs
- Minor repairs
- Alterations
- 100-hour inspections
- Annual inspections
- Special inspections
- Preventative maintenance
- Recent experience requirement

10.2 Identify the information in FAR Part 65 pertaining to eligibility for Aviation Maintenance Technician certification and ratings

- Length of experience required
- Practical experience required
- Minimum age
- Revocation and suspension
- Inspection authorizations

Domain 2: Basic Processes**Instructional Time: 25-30%****STANDARD 4.0 MAINTAIN AND REPAIR FLUID LINES AND FITTINGS**

4.1 Fabricate and install rigid fluid lines

- Measure, cut, bend, and flare
- Read measurements and formulas
- Identify correct type of tubing
- Fitting selection
- Pressure testing

4.2 Fabricate and install flexible fluid lines

- Measure, cut, bend, and flare
- Read measurements and formulas
- Identify correct type of tubing
- Fitting selection

	<ul style="list-style-type: none"> • Pressure testing
STANDARD 5.0 INSPECT AND TEST AIRCRAFT MATERIALS AND PROCESSES	
5.1 Identify and select nondestructive testing processes	<ul style="list-style-type: none"> • Dye penetrant • Radiograph • Eddy current • Magnetic particle • Ultrasonic
5.2 Identify and select aircraft hardware and materials	<ul style="list-style-type: none"> • AN, NAS, MS standards • Manufacturer markings • SAE material code • Interpret symbols • Diameter and length measurements • Alloys • Material strength test • Material stress • Heat treatment
5.3 Perform precision measurements	<ul style="list-style-type: none"> • Proper calibration • Vernier scale • Decimal place • Dial gauge • Runout • Part preparation
STANDARD 7.0 PERFORM AIRCRAFT CLEANING AND CORROSION CONTROL	
7.1 Identify and select aircraft cleaning materials	<ul style="list-style-type: none"> • Approved cleaning agents • Aircraft maintenance specifications • Aluminum cleaning agents • Caustic cleaning agents • Chemical removal of oil and grease • Mechanical removal of oil and grease • MSDS
7.2 Identify types of aircraft corrosion	<ul style="list-style-type: none"> • Direct chemical corrosion • Electrochemical corrosion • Corrosion prone areas

	<ul style="list-style-type: none"> • Environmental factors • Stresses • Oxides
7.3 Identify corrosion removal techniques	<ul style="list-style-type: none"> • Chemical removal of corrosion • Mechanical removal of corrosion • Metallic structures • Non-metallic structures
7.4 Identify corrosion treatment techniques	<ul style="list-style-type: none"> • Protective coating to a metallic material • Protective coating or treatment to a non-metallic material • Post wash treatments • Aircraft maintenance specifications • AC 43-13.1B

Domain 3: Basic Electricity Instructional Time: 15-20%	
STANDARD 1.0 PERFORM ELECTRICAL MAINTENANCE AND REPAIR	
1.1 Calculate and measure electrical power	<ul style="list-style-type: none"> • Ohm's Law formula • Watt's Law • Kirchhoff's Law for voltage and current
1.2 Measure, voltage, current, resistance, and continuity	<ul style="list-style-type: none"> • Multimeter connection • Multimeter reading • Troubleshooting
1.3 Determine the relationship of voltage, current, and resistance in electrical circuits	<ul style="list-style-type: none"> • Series circuits • Parallel circuits • Series/parallel circuits • Ohm's Law calculations
1.4 Read interpret aircraft electrical circuit diagrams, including solid-state devices and logic functions	<ul style="list-style-type: none"> • Electrical diagram types • Electrical symbols • Read electrical diagrams • Logic gates

Domain 4: Basic Principles of Flight

Instructional Time: 15-20%

STANDARD 2.0 PREPARE AIRCRAFT DRAWINGS

2.1 Identify aircraft drawings and symbols and interpret system schematics

- Understanding of line types and their definitions
- Understanding drawing symbols and legend identification
- Identifying title blocks

2.2 Draw sketches of repairs and alterations

- Understanding the chronological steps in creating a sketch
- Understanding line types and uses

2.3 Interpret graphs and charts prior to maintaining and repairing systems

- Understanding steps to reading charts and graphs

STANDARD 9.0 APPLY BASIC PHYSICS TO AIRCRAFT SYSTEMS

9.1 Use and understand the principles of simple machines

- 5 types of machines
- Mechanical advantage calculations
- Work force relationship

9.2 Use and understand the principles of sound, fluid, and heat dynamics

- Sound resonance
- Specific gravity
- Pascal's Laws
- Boyle's Laws
- Charles's Laws
- Forms of energy
- Thermal dynamics
- Density
- Conduction, convection, and radiation

9.3 Use and understand the principles of basic aerodynamics

- Forces of flight
- Force area pressure relationship
- Airfoil

9.4 Use and understand the principles of aircraft structures

- Aerodynamic factors
- Material selection
- Manufacturing process
- Material stress, torsion/shear

	<ul style="list-style-type: none"> • Vibration • Primary structure • Secondary structure • Controls
9.5 Use and understand the principles of theory of flight	<ul style="list-style-type: none"> • Lift, thrust, weight, and drag • Bernoulli's Principle • Density altitude • Temperature, and/or pressure, and/or humidity

Domain 5: Basic Operations Instructional Time: 5-10%	
STANDARD 6.0 PERFORM GROUND OPERATION AND SERVICES	
6.1 Identify types of fires and fire extinguishers	<ul style="list-style-type: none"> • Fire types and classes • Fire extinguisher types • Fire extinguisher selection • Fire extinguisher use
6.2 Identify safe practices in aircraft fueling and handling	<ul style="list-style-type: none"> • Electrical grounding of equipment • Types of fuel • Fuel contamination • Automotive fuel • Fuel additives • Fuel caps • Single point connection • Fuel control panels • Fuel spills • De-fueling • Fueling equipment
6.3 Identify aircraft ground movement procedures	<ul style="list-style-type: none"> • ATC • Airport ground control • Airport tower control • Uncontrolled airfield • Starting a reciprocating engine aircraft • Starting a turbine aircraft

	<ul style="list-style-type: none">• Taxiing• Towing• Runways• Taxiways
6.4 Identify procedures for securing aircraft in a variety of conditions	<ul style="list-style-type: none">• Adverse weather conditions and hazards• Aircraft tie downs• Aircraft chocks• Control locks• Engine covers• Pitot static covers

